

# ADJUSTABLE SPEED DRIVES **AS3**



## HARNESSING THE POWER OF BUILT-IN COMMUNICATIONS

Toshiba's AS3 adjustable speed drive is designed with an emphasis on built-in communications, allowing end-users to access real-time data and refined controls to maximize system performance.



Industry 4.0/IoT (Internet of Things)	Industry 4.0 is the evolution of manufacturing, empowering businesses to learn and adjust from data available through connected manufacturing.
Dual Port Ethernet IP	Enables simple connection of multiple AS3s together on one network while simplifying cable management.
Embedded Web Server	Allows for quick access to Ethernet IP setup, parameters and real-time monitoring for diagnostics. Accessible through standard web browsers on PC, tablets, and smart phones.
Built-in LCD Display & Advanced Keypad	Multi-language LCD display, remote mounting, IP65 rated, transfer/save parameters, real-time clock for fault logging, and calendar functionality.
QR Codes	Displayed when troubleshooting faults or alarms, providing immediate access to a dedicated web link for maintenance and support.
STO Terminal	Detachable terminal strip meets IEC directives for safety with full implementation of Safe Torque Off, which quickly shuts down the system in the event of an emergency stop.
Permanent Magnet Motor Control	For control of permanent magnet (PM) motors with higher torque and efficiency values.
Pump Control	Multi-PID control with sleep function and the ability to autonomously control booster pumps based on system demands or operating a secondary PID control loop.
ASD Pro Software	Toshiba's programming software, which allows the user to utilize logic-type programming without the expense of a micro PLC.



#### COMMUNICATION OPTIONS

In addition to the built-in dual port Ethernet, the AS3 can make use of a wide array of easily installed option boards. These boards allow the user to communicate with a wide variety of systems when installed cassette style. Options include:

- Ethernet/IP (Embedded)
- Modbus TCP (Embedded) Modbus RTU

(Embedded)

- PROFINET EtherCAT
- PROFIBUS-DP
- DeviceNET
- CAN open

### **ADDITIONAL OPTIONS**

The AS3 can be supplied with additional options to expand control, allow greater flexibility, and provide better protection for a user's application. **Options include:** 

- AC Line Reactors
- DV/DT Long-Lead Filters

 Extended Terminal Cards

- Dynamic
- Flange Kit
- Conduit Boxes
- Safety Module (SS1, SOS, SS1, SBS,

SLS, SDI)

- Encoder Feedback Cards
- Harmonic Filters
- Remote-Mountable Keypads

#### **OTHER SPECIAL FEATURES**

 Broad Range of Compliances

**Overloads Required**)

- NEMA 1 Enclosure
- UL Listed & Labeled • Optional IP55
- NEC 2005 Motor **Overload Retention** Enclosure (No External Motor

#### **INDUSTRIES SERVED**

- Oil & Gas
  - Mining & Minerals
    - Chemical
      - Water & Wastewater

#### **APPLICATIONS**

- Pumps Fans
  - Compressors
  - Centrifuges
    - Conveyors
    - Mixers
      - Pump Jacks
        - Crushers
          - Cranes Hoists



1. Dual Port Ethernet IP 2. RS485 Communication Port 3. Up to 3 Embedded **Option Card Slots** 4. Safe Torque Off Terminals 5. 3 Digital Output Relays 6. 3 Analog Inputs 7.2 Analog Outputs 8.8 Digital Inputs



AS3 LV ASD

**Braking Resistor** 



Heaky Duty (HD) 0.5 1 2 3 5 7.5 10 15 20 25 30 40 50 60 75 100 125 150 200 250 30 400 50   Normal Duty (ND) 1 2 3 5 7.5 10 15 20 25 30 40 50 60 75 100 125 150 200 250 30 400 50   RATED OUTPUT U U 10 12 18.7 25.4 32.7 46.8 63.4 76.4 92.6 123 149 176 211 2.0 .0 .0 1.0	APPLICABLE MOT	OR (H	P)																				•	•										
American Daily (0.1)       1       2       3       5       7.5       10       15       20       25       30       40       50       60       75       100       125       100       1				2	3	5	75	10	15	20	25	30	40	50	60	75	100	125	150	200	250	300	350	450										
NATE OUTPUT CURRENT (A)         value					-											-		-																
volume       4.6       a       1.12       1.2       1.4       2.4       4.5       6.3       2.7       4.6.3       6.3.4       7.4       9.2       4.6.3       6.5       7.4       8.8       1.0       1.4       1.7       1.1       2.1       1.2       1.3       2.1       1.5       2.3       1.3       9.2       4.6.3       6.5       7.4       8.8       1.06       1.45       1.7       1.1       2.1       2.0       3.4       3.7       3.7       3.2       4.6.3       6.5       7.4       8.8       1.06       1.45       1.3       1.2       3.3       3.7       3.2       4.6.3       6.5       7.4       8.8       1.06       1.45       1.3 <th1.3< th=""> <th1< td=""><td></td><td>URRE</td><td>NT (A</td><td>)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th1<></th1.3<>		URRE	NT (A	)																														
and or Class N10       15       2       4       5       6       3       12.7       16.5       23.3       31.7       30.7       66.3       61.7       74.5       88       10       14       17       21.0       20.7       34.4       387       45.7       56.0         Contrace Frequency 2007       List 2007	200 V Class HD				11.2	18.7	25.4	32.7	46.8	63.4	78.4	92.6	123	149	176	211	-	-	-	-	-	-	-	-										
4000 Class ND       2.2       4       6       9       12       1       5.3       3.1       3.9       4.6       6.1.5       7.4.5       8       10e       14s       17s       2.1       2.0       3.0       4.27       4.1       5.0       6.16         VOLTACE/FEQUENCY         VOLTACE       VOLTACE         OUTPUT VOLTACE         COUPUT VOLTACE         OUTPUT VOLTACE         VOLTACE VOLTACE VOLTACE VOLTACE         VOLTACE VOLTACE         VOLTACE VOLTACE         VOLTACE VOLTACE         VOLTACE VOLTACE         VOLTACE VOLTACE         VOLTACE VOLTACE         VOLTACE VOLTACE	200 V Class ND	4.6	8	11.2	18.7	25.4	32.7	46.8	63.4	78.4	92.6	123	149	176	211	282	-	-	-	-	-	-	-	-										
VOLTAGE/FREQUENCY         Voltage 10%, -15%, Frequency £5%)           Voltage 10%, -15%, Frequency £5%)           OUTPUT VOLTAGE           Voltage 200 to 240 V (Maximum Output Voltage is Equal to the Input Supply Voltage)           OVERLOAD CURRENT FATING           Voltage 10% for Two Seconds           OUTPUT FREQUENCY RANGE           Setting Between 0.01 to 590 Hz; Adjusable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Amputency Adjustment (30 to 590 Hz; Adjusable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Amputency Adjustment (30 to 590 Hz; Moximum Cureation (10 to 500 Hz; Moximum Cureatis (10 to 500 Hz; Moximum Cureation (10 Hz) (10 Hz) MX	400 V Class HD	1.5	2.2	4	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88	106	145	173	211	250	314	387	427	550										
2000 Class       Three Phase 200 to 240 V, Solfon Hz (Voltage +10%, -15%, Frequency ±5%)         VIEW Phase 200 to 240 V, Solfon Hz (Voltage +10%, -15%, Frequency ±5%)         OUTPUT VOLTAGE         VIEW Phase 200 to 240 V, Solfon Hz (Voltage +10%, -15%, Frequency ±5%)         VIEW Phase 200 to 240 V, Maximum Output Voltage is Equal to the Input Supply Voltage)         VIEW Phase 200 to 240 V, Maximum Output Voltage is Equal to the Input Supply Voltage)         VIEW Phase 200 to 240 V, Maximum Output Voltage is Equal to the Input Supply Voltage)         VIEW Phase 200 to 240 V, Maximum Output Voltage is Equal to the Input Supply Voltage)         VIEW Phase 200 to 240 V, Maximum Output Voltage is Equal to the Input Supply Voltage)         VIEW Phase 200 to 240 V, Maximum Output Voltage is Equal to the Input Supply Voltage)         VIEW Phase 200 to 240 V, Maximum Output Voltage is Equal to the Input Supply Voltage)         VIEW Phase 200 to 250 Phy Mulpitage of Two Seconds         OUTPUT FREQUENCY RAVE         VIEW Phase 200 (Class 50 to 200 Ph (HD) Built-In; 400 V Class 250 to 450 Ph (HD) Attached VIEW Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 200 V Class 250 to 50 Ph (HD) Phase 20	400 V Class ND	2.2	4	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88	106	145	173	211	250	302	427	481	550	616										
Mode of 480 V, 50/60 Hz (Voltage 1:0%, -15%, Frequency ±5%)         OUTPUT VOLTAGE         OUTPUT VOLTAGE         Three-Phase 380 to 480 V (Maximum Output Voltage is Equal to the Input Supply Voltage)         Mode Valuas         Three-Phase 380 to 480 V (Maximum Output Voltage is Equal to the Input Supply Voltage)         Voltage         Voltage         Voltage         Voltage for 0-me Minute, 180% for Two Seconds         UPUT FREQUENCY RANGE         Voltage Between 0.01 to 500 Hz (Adjustable at 0.01 Hz Increments): Default Maximum Prequency is Set to 0.01 to 80 Hz; Maximum Prequency Adjustment (30 to 500 Hz) (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-In; 200 V Class 0.5 to 200 HP (HD) and 400 V Class 0.5 to 500 HP (HD) NEMA 1/P202 Built-In; 200 V Class 0.5 to 200 HP (HD) and 400 V Class 0.5 to 500 HP (HD) NEMA 1/P202 Built-In; 200 V Class 0.5 to 200 HP (HD) and 400 V Class 0.5 to 500 HP (HD) NEMA 1/P202 Built-In; 200 V Class 0.6 to 75 HP (HD) and 400 V Class 0.5 to 500 HP (HD) NEMA 1/P202 Built-In; 200 V Class 0.6 to 75 HP (HD) and 400 V Class 0.5 to 500 HP (HD) NEMA 1/P202 Built-In; 200 V Class 0.6 to 75 HP (HD) and 400 V Class 0.5 to 500 HP (HD) NEMA 1/P202 Built-In; 200 V Class 0.6 to 75 HP (HD) and 400 V Class 0.5 to 500 HP (HD) NEMA 1/P202 Wilh Optional Conduit Box         AMBIENT TEMEFATURE         EVELOSURE         Stating Between 5.0 C (Form C, Two Form A Relays), Three AI (0 to 10 VDC, 10 to 10 VDC, 10 to 20 mADC), Two A0	VOLTAGE/FREQU	ENCY														1			1															
OUTPUT VOLTAGE           200 V Class         Three Phase 200 to 240 V (Maximum Output Voltage is Equal to the Input Supply Voltage)           OVERLOAD CURRENT RATING           VOLTAGE           100         100% for One Minute, 130% for Two Seconds           OUTPUT FREQUENCY RANGE           Setting Between 0.01 to 590 Hz; Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency IS Set to 0.01 to 80 Hz; Maximum Frequency Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency IS Set to 0.01 to 80 Hz; Maximum Frequency IS Set to 0.01 to 80 Hz; Maximum Frequency IS Set to 0.01 to 80 Hz; Maximum Frequency IS Set to 0.01 to 80 Hz; Maximum Frequency IS Set To 0.01 Hz; Maximum Frequency IS Set To 0.01 Hz; Maximum Frequ	200 V Class	Three	-Phase	200 to 2	240 V, 50	)/60 H	z (Volta	ge +10%	%, -15%	%, Frequ	iency ±	:5%)																						
Three-Phase 200 to 240 V (Maximum Output Voltage is Equal to the Input Supply Voltage)         ADD V Class         Three-Phase 380 to 480 V (Maximum Output Voltage is Equal to the Input Supply Voltage)         OVEELOAD CURKETY EATING         UPUELOAD CURKETY EATING         UPUELON ONE HINDE, 139% for Two Seconds         UPUELON ONE HINDE, 139% for Two Seconds         OUTPUT FREQUENCY RANCE         OUTPUT FREQUENCY RANCE         DE REACTOR         200V Class 0.5 to 200 HP (HD) Built-In; 200 to 1500 HP; (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 200 HP (HD) and 400 V Class 2.5 to 450 HP (HD) Attached         200V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) and 400 V Class 0.5 to 450 HP (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 100 HP (HD) REM 1/P20 Built-In; 200 V Class 0.5 to 20 HP (HD) and 400 V Class 0.5 to 100 HP (HD) REM 1/P20 Built-In; 200 KD, BUDC, TWO AD (B to 10 VDC, -10 t	400 V Class	Three	-Phase	380 to 4	480 V, 50	)/60 H	z (Volta	ge +10%	%, -15%	%, Frequ	iency ±	:5%)																						
Three-Phase 380 to 480 V (Maximum Output Voltage is Equal to the Input Supply Voltage)         OVERLOAD CURRENT RATING         H0       150% for One Minute, 130% for Two Seconds         DUTPUT FREQUENCY RANCE         Setting Between 0.01 to 590 Hz; Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Miximum Frequency Adjustment (30 to 590 Hz)         DC REACTOR         200/Class 0.5 to 200 HP (HD) Built-in; 400 V Class 250 to 450 HP (HD) Attached         ENCLOSURE         200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) NEMA 1/P20 With Optional Conduit Box         AMBIENT TEMPERATURE         10° to +60° C (Remove the Upper Coverif 50° C or More; Max 60° C)         TERMINAL STIP I/O         Elept ED (Inter ED (One Form C, Two Form A Relays), Three AI (Io to 10 VDC, 10 to 10 VDC, 10 to 0 MDC), two A0 (to to 10 VDC or 0 for 2 mADC), STO (Lass E andit andit andit and a and a to 2 mADC), STO (Lass E a	OUTPUT VOLTAG	Ξ																					•											
OVERLOAD CURRENT RATING         HD       10 10 10 10 10 10 10 10 10 10 10 10 10 1	200 V Class	Three	-Phase	200 to 2	240 V (M	aximu	ım Outp	out Volt	age is	Equal to	o the In	put Si	upply V	oltage)																				
HD distribution of the Minute, 180% for Two Seconds         ND       120% for One Minute, 135% for Two Seconds         OUTPUT FREQUENCY ENAGE         Setting Between L30 to 590 H2; Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustment (30 to 590 Hz)         DE REACTOR         200 V Class 0.5 to 200 HP (HD) built-in; 400 V Class 250 to 450 HP (HD) Attached         ENCLOSURE         200 V Class 0.5 to 50 HP (HD) and 400 V Class 250 to 450 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 0.5 to 150 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 Built-In; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 0.0 To max 60°C)         TEMENATION INFORMED VENE VENE VENE VENE VENE VENE VENE VE	400 V Class	Three	-Phase	380 to 4	480 V (M	aximu	m Outp	out Volt	age is	Equal to	o the In	put Si	upply V	oltage)																				
ND       120% for One Minute, 135% for Two Seconds         OUTPUT FREQUECY RANGE         Setting Between 0.01 to 590 Hz; Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 Hz Hz Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 Hz Hz Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency is Set to 0.01 to 0.01 Hz Hz; Maxim Frequency i	OVERLOAD CURR	ENTR	ATING	3																														
OUTPUT FREQUENCY RANGE	HD	150%	for One	e Minute	e,180%	for Tw	o Seco	nds																										
Setting Between 0.01 to 900 H2; Adjustable at 0.01 H2 Increments; Default Maximum Frequency is Set to 0.01 to 80 H2; Maximum Frequency Adjustable at 0.01 H2 Increments; Default Maximum Frequency is Set to 0.01 to 80 H2; 200/400 V Class 0.5 to 20 HP (HD) Built-in; 400 V Class 250 to 450 HP (HD) Attached         ENCLOSURE         200/400 V Class 0.5 to 50 HP (HD) Built-in; 400 V Class 2.5 to 50 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) HEMA 1/P20 HP (HD) NDC, 0 to 20 mADC, Two A0 (to 10 VDC or or or 0 HP (HD) HEMA 1/P20 HP (HD	ND	120%	for One	e Minute	e, 135%	for Tw	o Seco	nds																										
Maximum Frequency Adjustment (30 to 590 Hz)         DC REACTOR         Colspan="4">Adjustment (30 to 590 Hz)         Colspan="4">Solve U Class 20 to 590 HP (HD) Built in; 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 0 to 57 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 0 to 75 HP (HD) and 400 V Class 125 to 450 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 0 to 75 HP (HD) and 400 V Class 125 to 450 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 0 to 75 HP (HD) and 400 V Class 125 to 450 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 100 TS HP (HD) Add 00 V Class 125 to 450 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 100 TS HP (HD) HD (HD) NEMA 1/IP20 Built-in; 200 V Class 100 TS HP (HD) NEMA 1/IP20 Built-in; 200 V Class 100 TS HP (HD) HD (HD)	OUTPUT FREQUE																																	
200/400 V Class 0.5 to 200 HP (HD) Built-in; 400 V Class 250 to 450 HP (HD) Attached         EXCLOSURE         200 V Class 0.5 to 50 JP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 125 to 450 HP (HD) NEMA 1/IP20 with Optional Conduit Box         AMBIENT TEMPERATURE         TERMINAL STRIP I/O         Eight Di, Three DO (\overlass 0.5 to 100 HP (HD) NEMA 1/IP20 with Optional Conduit Box         COUV Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 with Optional Conduit Box         AMBIENT TEMPERATURE         TERMINAL STRIP I/O         Eight Di, Three DO (\overlass Conduct Store) Form C, Two Form A Relays), Three AI (0 to 10 VDC -10 to +10 VDC, 0 to 20 mADC), Two AO (0 to 10 VDC or or 0 to 20 mADC), STO (Safe Torque Off)       POLY         COUV CLASS WEIGHES & UVENER VENER VEN			0				2		)1 Hz Ir	ncreme	nts; Def	fault M	laximui	m Freq	uency is	s Set to	0.01 tc	980 Hz;																
ENCLOSURE         200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/P20 Built-in; 200 V Class 0.5 to 50 HP (HD) and 400 V Class 125 to 450 HP (HD) NEMA 1/P20 with Optional Conduit Box         AMBIENT TEMPERATURE         -10" to +60°C (R=rower He Upper Cover if 50°C or More; Max 60°C)         TERMINAL STRIP //O         Eight DI, Three D0 (One Form C, Two Form A Relays), Three AI (0 to 10 VDC, -10 to +10 VDC, 0 to 20 mADC), Two A0 (0 to 10 VDC or 0 to 20 mADC), ST0 (Safe Torque Off)         200V CLASS WEIGHTS & DIMENSIONE         Fight DI, Three D0 (One Form C, Two Form A Relays), Three AI (0 to 10 VDC, -10 to +10 VDC, 0 to 20 mADC), Two A0 (0 to 10 VDC or 0 to 20 mADC), ST0 (Safe Torque Off)       50       60       75       100       15       20       2.5       30       40       50       60       75       100         Size	DC REACTOR																																	
$ 200 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		200/4	00 V Cla	ass 0.5 t	o 200 H	P (HD)	Built-ir	n; 400 V	Class	250 to 4	50 HP	(HD) A	ttacheo	d																				
200 V Class 0 to 75 HP (HD) and 400 V Class 125 to 450 HP (HD) NEMA 1/P20 with Optional Conduit Box         AMBIENT TEMPERATURE         a-10° to +60° C (R===================================	ENCLOSURE																																	
<th belook="" colspan="10" equ<="" equation="" of="" td="" the=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>al Cond</td><td>uit Box</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td></td> <td>al Cond</td> <td>uit Box</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>																								al Cond	uit Box								
TERMINAL STRIP I/O         Eight DI, Three DO (One Form C, Two Form A Relays), Three AI (0 to 10 VDC, -10 to +10 VDC, 0 to 20 mADC), Two AO (0 to 10 VDC or 0 to 20 mADC), STO (Safe Torque Off)         200V CLASS WEIGHTS & DIMENSIONS         HD       0.5       1       2       30       40       50       60       75         ND       1       2       33       5       7.5       10       15       20       25       30       40       50       60       75         ND       1       2       33       5       7.5       10       15       20       25       30       40       405       60       75       10.5       1       2       33       5       7.5       10       15       20       26       60       75       30.6																																		

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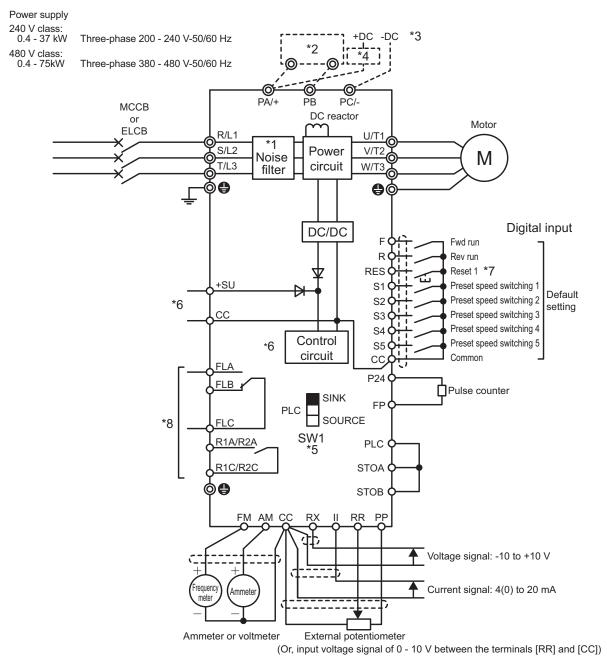


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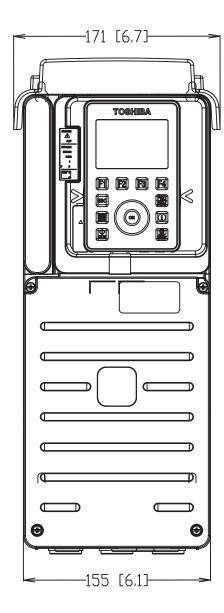
**TOSHIBA MOTORS & DRIVES DIVISION** 

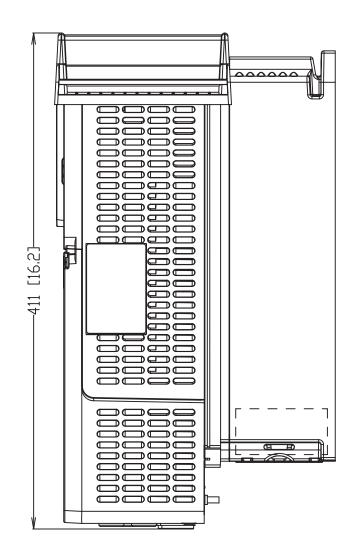
Scan here to learn more about the AS3 [Standard connection diagram - Sink]

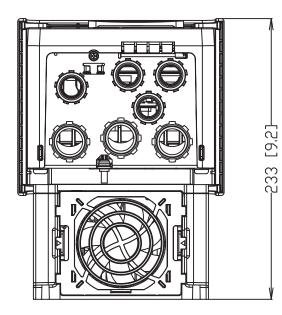
This diagram shows an example of a standard connection for 240 V class, 0.4 to 37kW and 480 V class, 0.4 to 75kW (frame size A1 to A5).



- \*1 EMC filter is built in 480 V class.
- \*2 External braking resistor (option).
- \*3 To supply DC power, connect it to the terminals [PA/+] and [PC/-].
- \*4 When your inverter is VFAS3-2110P to VFAS3-2370P or VFAS3-4220PC to VFAS3-4750PC with DC power supply, a circuit to suppress an inrush current is required. For detail, refer to application manual "DC power supply connect to inverter" (E6582156).
- \*5 For the switch function, refer to [2. 3. 5].
- \*6 To supply control power from an external power supply for backing up the control power supplied from the inverter, an optional control power supply unit (CPS002Z) is required. In this case, it is used in conjunction with the inverter internal power supply. Set <F647: Control power option failure detection> to back up the control power supply. For details, refer to [6, 30, 20].
- \*7 The reset signal is activated by  $ON \rightarrow OFF$  trigger input.
- \*8 Connect to power to comply with OVC2 (Over Voltage Category 2). Isolation transformer is necessary when connecting to power supply (OVC3).







AS3 Frame A2									
Model Number	HP Rating HD	HP Rating ND	Estimated Weight (lbs.)						
VFAS3-2037P	5	7.5	17.0						
VFAS3-4055PC	7.5	10	17.0						
VFAS3-4075PC	10	15	17.0						